

FEBRUARY, 1958

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# AMATEUR RADIO

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## ADVERTISING REPRESENTATIVE:

BEATRICE TOUZEAU,  
96 Collins St., Melbourne, C.I.  
Telephone: MF 4505.

## PRINTERS:

"RICHMOND CHRONICLE,"  
Shakespeare St., Richmond, E.I.  
Telephone: JB 2419.

MSS. and Magazine Correspondence should be forwarded to the Editor, "Amateur Radio," C.O.R. House, 191 Queen Street, Melbourne, C.I., on or before the 8th of each month.

Subscription rate in Australia is 18/- per annum, in advance (post paid) and A£1/1/- in all other countries.

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Published by the Wireless Institute of Australia,  
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Melbourne, C.I.

## EDITORIAL



## MR. MEMBER

History has shown that as mankind develops the necessity arises for organisation. Even early cave-men found that in order to have the requirements for existence and defence from natural enemies, some person or persons had to be entrusted with the task of directing the majority. In this way "civilisation" as we now call this organisation was evolved.

The same manifestation of planning can be found in various sections of life as it presents itself today: Boards have Directors; Trusts have Committees, and so on. Our own Institute has its Divisional Councils charged with multitudinous duties of planning.

But for whom and what is this planning? If the fundamentals are examined, it will be noted that the organisation was for the benefit of the general participant. Thus the duty of the Director, Chairman or what-have-you and his committee is to work for the average individual; in other words, Mr. Member.

However, where does Mr. Member fit in; is he but a silent figure on whom benefits both good and bad are showered?

In the basic set-up, it was the individual who, in co-operation with his fellows, appointed a leader and then accepted his direction. Hence, the individual is the person who has

the right to voice his opinion as to what action should be taken with respect to his welfare.

Mr. Member of the W.I.A., therefore, by speaking at a meeting indicates to his Council his personal thoughts on some matter. If Mr. Member and his fellows discuss some matter freely Council can be guided by a majority decision. Plainly then it is the duty of Mr. Member to state his ideas; to give others the benefit of his opinions, so that through enlightened discussion something can be acted upon.

A postmortem with its trenchant criticism doesn't bring anything to life.

And after voicing his notions and accepting a majority decision, where is Mr. Member now? Because he, together with his fellows, is the Institute, it is his duty to undertake the tasks given him by his leader. Even more than this, it is his privilege to offer to undertake positions and projects which he can give his especial attention.

An Institute consisting of Mr. Member and his fellows banded together, stating their ideas, doing a share of the work and enthusiastically aiming at better things for all is a very worthwhile Institute indeed.

Mr. Member—I salute you.  
FEDERAL EXECUTIVE.

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# Mathematical Considerations of S.S.B.

BY JOHN ALBERT ADCOCK,\* VK3ACA

IN "Amateur Radio," July, 1957, appeared an article on s.s.b. which pointed out that it lacked many of the advantages previously claimed for it. I think that the explanation given in that article was only half the story and a more detailed explanation would create a better understanding of the system. I feel that many Amateurs are not honest about the results they get from s.s.b. reception and think something like this: "It sounds awful, but just because I cannot hear transmission. I will tell him it sounds OK." I hope the following explanation will help to clear up the apparent disagreements between different explanations of the system.

First of all let us look at some mathematical relationships. For simplicity, we will assume we are dealing with simple sine waves. A modulated wave can be looked upon from two points of view. Where you are concerned with bandwidth, it can be looked upon as a number of single sine waves, or where you are concerned with amplitude it can be looked upon as an envelope or a product of a carrier wave and a modulating wave. The instantaneous amplitude of the envelope will equal the sum of the instantaneous amplitudes of the individual sine waves in the former case.

Let us call the amplitude of our carrier A and the frequency  $f_c$ , then the instantaneous amplitude of the carrier will be:

$$A \sin 2\pi f_c t \dots \dots (i)$$

where t is time in seconds.

Similarly, let the amplitude of the modulating wave be B and its frequency  $f_m$ , then the instantaneous amplitude of this wave will be:

$$B \sin 2\pi f_m t \dots \dots (ii)$$

The expression for the resultant wave when (i) is amplitude modulated by (ii) will be:

$$\sin w_1 t (A + B \sin w_2 t) \dots (iii)$$

$w_1$  and  $w_2$  have been substituted for  $2\pi f_c$  and  $2\pi f_m$  for simplicity.

This product can be changed into an identical sum and we get the expression:

$$A \sin w_1 t + \frac{B}{2} \cos (w_1 - w_2) t -$$

$$\frac{B}{2} \cos (w_1 + w_2) t \dots (iv)$$

It will be noted that the two side bands of expression (iv) are of half the amplitude of the original modulating wave expression (ii); one with frequency  $f_c - f_m$  and the other with frequency  $f_c + f_m$ .

Now if we remove one side band and double the amplitude of the other side band, we get the expression:

$$A \sin w_1 t + B \sin (w_1 + w_2) t \dots (v)$$

(the change in phase of the remaining sideband will not make any difference after the removal of the other side

band). The expression for the instantaneous amplitude of the resultant wave will be:

$$\sqrt{A^2 + B^2 + 2AB \cos w_2 t} \sin \left[ \frac{(2w_1 + w_2)}{2} t + X \right] \dots (vi)$$

where X is a variable depending upon the values of A, B,  $w_1$  and  $w_2$ .

From expression (vi) it is seen that the expression for the instantaneous amplitude of the envelope is:

$$\sqrt{A^2 + B^2 + 2AB \cos w_2 t} \dots (vii)$$

If A is large as compared with B, then the expression is approximately:

$$A + B \cos w_2 t \dots (viii)$$

It can be seen that the frequency of this wave is equal to the difference between the frequencies of the two original sine waves of expression (v) and equal to our original modulating wave frequency. Also, it will be noted that the frequency and amplitude of this approximate envelope is identical to that of the envelope of our original amplitude modulated wave of expression (iii).

For the remainder of this discussion, expressions (vi) and (iv) represent amplitude modulated waves where the modulating frequency is  $f_m$  and expression (v) will represent a single side band of frequency ( $f_c + f_m$ ) and an injected carrier of frequency  $f_c$ . The beat frequency in the second case will be  $f_m$  represented by expressions (vii) and (viii). The power of any of these waves in any part of a circuit will be proportional to the square of its amplitude. Since the two side bands (or frequencies) of expression (iv) are half the amplitude of the one of expression (v), then each of these waves of expression (iv) contain one quarter the power of the single sideband of expression (v). The total sideband power of our considered wave in expression (iv) is half that of expression (v).

It will be seen that the audio power extracted from the a.m. signal is the same as that from the s.s.b. For a fully modulated wave (i.e. A = B) the sideband power of our s.s.b. will be equal to the carrier power of the a.m. signal. If the s.s.b. requires double the power of the a.m. signal's sidebands to produce the same audio power in a receiver, what becomes of the other half of the power contained in the single sideband? The answer lies in the square root sign of expression (vii). It can be shown that the envelope of expression (vii) contains twice the power of the envelope of expression (viii). By Fourier's theorem, expression (vii) can be resolved into a fundamental and harmonics.

Instantaneous amplitude of envelope =  $a + b \cos w_2 t - c \cos 2w_2 t + d \cos 3w_2 t - \dots$  (ix)

where the values of a, b, c, d, etc., depend upon the ratio of B to A. From this expression it is seen that the extra power in expression (vii) is used up in

producing these extra harmonics and the d.c. component a. As has been pointed out from expression (viii), these harmonics are negligible when A is large as compared with B.

What about signal-to-noise ratio? The noise power at a particular point in the audio circuit of a receiver will be proportional to the bandwidth of the i.f. channel. Therefore when using a receiver of a given bandwidth and when comparing an s.s.b. signal with an a.m. signal of carrier power equal to the peak power of the s.s.b. signal, there will be no advantage in signal-to-noise ratio of s.s.b. compared with a.m. In fact unless the amplitude of the injected carrier in the s.s.b. receiver is much larger than the peak amplitude of the sideband, distortion will result. If a receiver is used which has a bandwidth to take best advantage of the system being received, then the s.s.b. receiver will cut the noise power by half and thus the s.s.b. will have a 3 db. signal-to-noise ratio advantage over a.m.

There are two ways that I know of to improve this situation:

(1) By using a square law detector in which the resulting audio amplitude from expression (vii) would be proportional to  $B \cos w_2 t$ . A square law detector condition can be approximated to by using a very low signal input to a diode detector. I have not gone into the mathematics involved in this case. Incidentally the effect of a square law detector can be approximated to by using a diode detector with a small signal input.

(2) By using a "product detector" or "converter". This type of detector is used in what is sometimes called a "synchronous receiver". In this type of detection, the injected carrier is actually modulated by the received sideband. The expressions for the instantaneous amplitude of the modulation envelope of this new wave will be:

$$\sin w_1 t [A + \sqrt{2} B \sin (w_1 + w_2) t] \dots \dots (x)$$

$$= A \sin w_1 t + \frac{\sqrt{2} B}{2} \cos w_2 t -$$

$$\frac{\sqrt{2} B}{2} \cos (2w_1 + w_2) t \dots (xi)$$

$\frac{\sqrt{2} B}{2} \cos w_2 t$  is the only sideband that will be audible and it will be noted to have the same frequency as the original audio we started with in expression (ii).

To study the signal-to-noise ratio in this particular case, it must be realised that comparison of signal and noise powers in a particular receiver is purely relative. It should also be noted that the power in a sine wave will be proportional to the square of its amplitude.

Let the noise power be N and the signal power of the original single sideband or the power of the original a.m. carrier be P. The actual signal power in the expression  $[A + B \cos w_2 t]$

\*Staff Mess, P.O. Box 8, Yallourn, Vic.



from expression (iii) and (viii) will contain only  $P+2$ , because this expression represents the peak values or envelope of the modulated wave. The  $\sqrt{2}$  value in expressions (x) and (xi) was put in to make the sideband signal power equal to  $P$ . The signal power will be divided equally between the two sidebands.

In the case of expression (iii) the signal-to-noise ratio will be:

$$\frac{\frac{1}{2}P}{N} = \frac{P}{2N}$$

In the case of expression (viii) the signal-to-noise ratio will be:

$$\frac{\frac{1}{2}P}{N} = \frac{P}{N}$$

In the case of expression (xi) the original noise power will be divided equally between the two sidebands and the signal-to-noise ratio will be:

$$\frac{\frac{1}{2}P}{\frac{1}{2}N} = \frac{2P}{N}$$

Thus it will be seen that there is a 6 db. signal-to-noise ratio improvement using this new system compared with equivalent a.m.

#### SUMMING UP

1. There is no improvement in signal-to-noise ratio in receiving s.s.b. as compared with a.m. with an equivalent power on an ordinary receiver.

2. If the receiver bandwidth is such as to take best advantage of the system being received, then s.s.b. has a 3 db. signal-to-noise ratio advantage over equivalent a.m.

3. Unless the injected carrier is much stronger than the sideband being received, distortion will result. (20% second harmonic when the sideband amplitude and injected carrier amplitude are equal.)

4. A receiver with a rectifier type detector is actually unsuitable for s.s.b. reception.

5. To extract all the intelligence from the sideband it is necessary to use a product detector.

6. 6 db. is the maximum signal-to-noise ratio advantage of s.s.b. over equivalent a.m. using this system.

7. Some further advantage of s.s.b. can be realised if the average power of the s.s.b. signal is considered, but our licence only allows a peak input of 100 watts.

#### CONCLUSION

If you have any qualms about accepting this seemingly impractical mathematical method of arriving at these conclusions, ask yourself honestly have you ever heard an s.s.b. signal that really sounded like a.m. I realise that there are many advantages of s.s.b. and I may be a little biased against it. S.s.b. will probably increase in popularity eventually, so that it will be necessary to re-build all our high frequency gear. In any case, c.w. still has the edge on all these systems! Incidentally, articles describing product type detectors appeared in "CQ" for June '57 and "QST" for Sept. '57.

If any person is interested in how expressions (iii), (iv), (v) and (viii) were developed, I would be pleased to supply him with the reasoning.

## COMMUNICATIONS KEPT OPEN BY GRIFFITH HAMS

On 22nd December, 1957, Griffith Amateurs were approached by Councilor Murrell, from Hillston, who advised that communications had been lost between Hillston, Mt. Hope and Matakana due to extensive bush fires in the area. He asked that the Amateurs go to Hillston with portable radio equipment to assist the bush fire fighters with communications.

Four stations were set up, one being at Hillston and three were stationed by Cr. Murrell with bush fire fighters.

Stations which operated were VK-2PL, VK2AXD, VK2AEB, and VK2HJ; they were assisted by VK2PFS and VK2ZDM. The equipment used was an AT21 and RI155 at Hillston base station, and out-stations were ATR2B, ATR7B and No. 11 set.

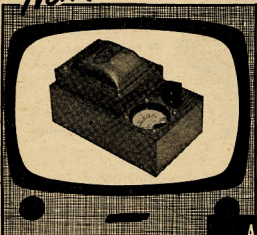
7050 Kc. was used throughout as the No. 11 set does not tune 80 metres, however it was considered that 80 metres would have been the better band to operate on that particular night.

Communications were carried out between out-stations and from out-stations to base from 1700 hours on the 22nd to 1200 hours on 23rd December. At this stage it was considered that no further assistance could be given by the Amateurs and they returned to Griffith.

The above report was made available by VK2PL and the N.S.W. Divisional Council of the W.I.A. would be pleased to receive reports from any other members called upon to assist in a like manner.

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With the increasing number of Television Receivers now being installed, the demands made upon the T.V. serviceman's time will increase steadily. In certain areas reception difficulties often occur due to low supply voltage, and it is certain that some ready means of detecting this condition would assist the serviceman, and perhaps save valuable time in endeavouring to locate a suspected fault within the receiver. With the above in mind, A & R have available the T.V. Voltage Adjuster as illustrated. Specially constructed and finished in attractive Silver-Grey Hammer-tone, this A & R product provides the serviceman with an invaluable, yet inexpensive addition to his test equipment.

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Flicker or shrinkage of the Television picture often indicates a low line voltage, leading to complaints of unsatisfactory reception, or to difficulty in adjusting the receiver controls. This condition can be reproduced with an A & R Voltage Adjuster, thus indicating the lowest possible mains voltage for good reception. The mains taps on the Receiver can sometimes be adjusted to suit, provided the voltage is consistently low. There are many other applications for the A & R Voltage Adjuster, such as, correction of input voltage to Amateur Transmitting and Receiving Equipment, Tape Recorders, Hi-Fi Audio Equipment, etc., provided that load imposed is within capacity of adjuster. The auto model is quite suitable for these applications.

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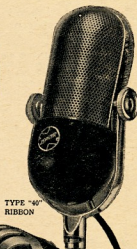
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# Test Meters and How to Use Them

## SOME BASIC PRINCIPLES OF TROUBLE SHOOTING

BY LEWIS G. McCOY, WHICP

**S**OONER or later in Amateur Radio the Ham is going to have to learn how to trouble shoot. By trouble shooting we mean finding what is wrong with a piece of equipment and fixing it. Whether one builds a kit or a homebrew piece of equipment—or even has a store-bought rig—the day is likely to come when something goes wrong and the units needs fixing. In this article we propose to show you a simple method of pinpointing trouble sources.

### EQUIPMENT NEEDED

An important piece of test equipment needed by the Ham who wants to do his own servicing is a volt-ohm-milliammeter (v.o.m.). This is a single instrument that is capable of measuring resistances, direct current, and a.c. or d.c. voltages. Such a meter is a sound investment for the Ham because he will find it has many uses in the shack. However, before running out to the store and buying the first unit you see, write some or all of the distributors of Ham equipment and obtain their latest catalogues and sales flyers. Then you'll be in a position to get the best buy for your money.

When you start looking through the catalogues you'll find that the test meters are rated by "ohms-per-volt". The number of ohms-per-volt determines the sensitivity of the instrument. For example, when the 250-volt scale of a 1,000 ohms-per-volt meter is used, the meter has a total resistance of 1,000 times 250 or 250,000 ohms. By Ohm's Law, the current required for full-scale deflection would be 1 Ma., which means the instrument uses a 0-1 Ma. meter. Another common type of test meter is the 20,000 ohms-per-volt unit which uses a 50 microampere meter. Also, you'll see advertisements for vacuum-tube voltmeters (v.t.v.m.) both as kits and completed units. Their advantage lies in their very high resistance (10 megohms or more).

### ADVANTAGES AND DISADVANTAGES

Each of the three instruments listed above has certain limitations. The accuracy of any voltage reading will depend on the calibration accuracy of the meter and to what extent the meter "loads" the circuit being tested. A 1,000 ohms-per-volt unit uses less resistance in series with the meter than the other two types, and consequently more current will be drawn from a circuit being checked. However, once you understand this point, you can use the 1,000 ohms-per-volt meter for most transmitter work. The only place in a transmitter where this type of meter may be at a disadvantage is in checking the grid bias across a high-resistance grid leak. If the meter resistance is less than 8 or 10 times the grid-leak resistance, it is better to use the meter as a milliammeter and connect it between the grid resistor and ground.

● A Test Meter is a mighty useful gadget to have around the shack when a piece of gear, for no obvious reason, isn't working properly. In this article WHICP discusses the advantages and disadvantages of some of the various Test Meters and then goes on to show how they are used.

If receiver or high-resistance circuit trouble shooting is contemplated, then purchase either a 20,000 ohms-per-volt v.o.m. or a v.t.v.m.

The v.t.v.m. will measure a.c. and d.c. voltages and also resistance. Most commercial units have an input resistance of 11 megohms and consequently any loading of a circuit being tested is held to a minimum. The v.t.v.m. does not measure current but it is a simple matter to determine the current flow by checking the voltage drop across a known resistor and then using Ohm's Law.

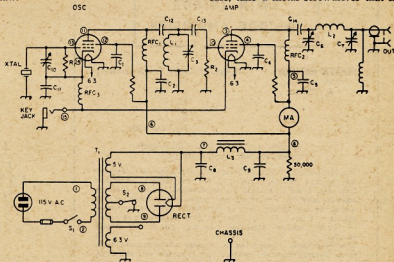


Fig. 1—Circuit diagram of two-tube typical transmitter with power supply.

The v.t.v.m. requires a 115 volt a.c. power source as it does not use batteries for its power supply. Unless the v.t.v.m. is well shielded and the line cord is filtered, it is susceptible to r.f. pick-up when working around an operating transmitter.

### USING THE TEST METER

There are a couple of important points to remember when using your test meter. Never, never, use ohm-meter scales to check live circuits. If there are voltages present in a piece of equipment being checked, don't use the ohmmeter scales.

Always use the highest voltage or current scale when checking an un-

known quantity. Otherwise you may have a burned out piece of test equipment or a badly bent meter pointer.

The test meters are usually furnished with insulated leads that have metal probes at the tips. The tips are OK for some tests, but you'll find many instances when it is more convenient to clip the leads to the circuit being tested. There are insulated clips available that will slip over the ends of the probes and at least one should be purchased for your test meter.

### SAFETY FIRST

In doing trouble shooting the most important thing to remember is that you are working with dangerous voltages and currents. You cannot permit yourself to be careless at any time you are testing a live circuit. Turning the power off is not always a sure method of removing voltages from a piece of gear. If the bleeder resistor should happen to open up, the capacitors in the power supply may retain their charges for long periods of time. To be safe, take a metal screwdriver that has

a well-insulated handle and short the hot power supply lead to the chassis. This will discharge the capacitors.

Many Amateurs are inclined to be careless around low voltages, believing that only high voltages are dangerous. Whenever you do any trouble shooting always remember that you are working with live circuits—get careless and the circuits may be live but you won't!

### WHERE TO START

Fig. 1 is a circuit diagram typical of a rig used by many Amateurs. It consists of a crystal oscillator and an amplifier. We'll use this circuit to illustrate the various check points in trouble shooting.



[illegible]

## Amateur Radio, February, 1958

When something goes wrong in a piece of equipment that has been operating there are a few things the operator should check before doing any voltage testing. Such obvious things as key leads, a.c. power source and plug, fuse, antenna system, etc., should all be checked out. If the tubes are glass, look and see if the heaters are lighting. If the tubes are metal, see if the envelopes are warm to the touch. Should one be hot and the other cold, try another tube in place of the cold one. In other words, try to analyse the problem before actually digging into the equipment.

When a piece of gear fails there are three sign posts that will narrow our trouble shooting area. First, the tubes don't light or aren't warm. Second, there is no plate current present. And last, no grid current shows. In Fig. 1 we don't show meter switching but most transmitters meter both the grid and plate by switching.

We'll start our trouble shooting by taking each of the three visible signs and going through them separately. Table 1 shows the expected meter readings, check points, and trouble spots for the heater circuits, excluding the obvious checking of the a.c. line power, switch S1 and fuse to the power transformer T1. The v.o.m. scale used for each check will depend on the voltage being checked. However, always remember to use the highest scale when checking an unknown voltage point.

You will notice reference to bad wiring and this can mean faulty soldering, poor connections, etc. When checking at a terminal point that has several branches, the test probe should be touched to each of the component leads, not just the terminal point. Also, a common wiring error beginners make

is to solder insulated wire ends to terminals—particularly enameled covered wire. Always remove the insulation and clean the ends of the wires before soldering.

In Table 1, the first column gives the check points where the v.o.m. leads are connected. The second column shows the expected meter reading. The last column lists expected trouble spots.

### NO PLATE CURRENT

In our checking in Table 1 we had a clear-cut road to follow. However, in finding why there is no plate current our road has several branches which must be checked out. In Table 2 each check point will show us what has happened up to that particular point. Before doing any checking with the test meter there are a few things to look for that may be the cause of trouble. First, be sure that the key leads haven't been disconnected. If the key isn't closing the circuit then the cathodes of the oscillator and amplifier are not being connected to chassis ground and the tubes won't draw current. If there is grid current but no plate current, then it can be assumed that the power supply is working. However, due to a faulty component or wiring, the power supply output may not be reaching the amplifier. Should you have output from the rig and show no plate current, then it is apparent that the meter isn't functioning or the movement is sticking.

With the heater checks we were only concerned with a.c. so voltage polarity was no problem. In Table 2 we will be working with d.c. and the chassis ground is our reference point; the voltages are either positive or negative with respect to chassis. On the test meter, the lead jacks are marked plus

and minus or are red and black. The black is minus or negative, and this lead is connected to chassis ground for all of the checks in Table 2. Our positive lead is the one used for all the checks.

If there is plate voltage present and the tube does not draw current, there are three things to look for. An open cathode circuit will prevent current from flowing. If there is no voltage at the screen grid, very little or no current will flow. And last, if the grid is biased beyond cut off (and there is no grid drive), the tube won't conduct. In Table 2 we start off at the plate of the tube and work back to the power supply. The first column gives the check point, which is the circled number in Fig. 1. The next two columns indicate the presence of voltage. There are no definite values for voltages given because they would probably be meaningless if applied to your rig. Your instruction manual will give the important voltage and current values and these can be applied in your testing. The last column gives the cause of the trouble.

### NO GRID CURRENT

Before making voltage measurements for grid current there are some simple checks that can be tried which may show the trouble spot. Listen to your receiver at the crystal frequency for the oscillator signal. If there is no signal then try another crystal, and don't forget to tune the receiver to the new crystal frequency. Should there be a signal heard from the oscillator, then tune C3 to see if the amplitude of the signal changes. If it does—and gets louder at one point of the tuning—it indicates the oscillator and tuned circuit are operating properly. The trouble

TABLE 1

Heaters Don't Light or Tubes are Cold to the Touch.

Check Points	Normal Reading	If No Reading, Possible Cause
With S1 closed, between 1 and 2.	115 volts a.c.	Faulty power switch. Blown fuse. Faulty wiring in line cord or plug. Blown fuse in house wiring.
Across 6.3 volt heater winding on power transformer.	6.3 volts a.c.	Open heater winding.*
Between the heater pins at tube sockets.	6.3 volts a.c.	Poor ground connection for 6.3 volt winding. Bad connections at tube sockets or terminal soldering points on heater line. Poor ground connections at socket.
Heater pins on tubes. Remove tubes from sockets for this check.	Low resistance †.	Open heater.

\* An open heater winding doesn't mean a new power transformer is required. A filament transformer can be installed in the transmitter and the power transformer can be retained.

† Always use the low resistance scales of the test meter for continuity checks, unless it is desired to check the resistance in a circuit or continuity through high-resistance circuits.

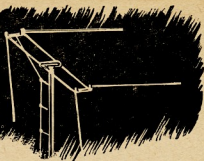
TABLE 2

R.F. Tubes Lit but No Plate Current Indicated

Measure + Voltage between Chassis and Check Point:	Voltage		Cause
	Yes	No	
3	X		See note at bottom of chart.
3		X	This indicates power supply voltage is OK but there is an open circuit between points 6 and 3.
6	X		Meter OK, but RFC2 is open.
5	X		Meter open.
6	X		Open screen dropping resistor, or C4 shorted.
4	X		Open filament in rectifier tube, wiring error or faulty transformer winding.
7	X		Bad rectifier tube. Bad connections at rectifier socket.
8 or 9; close S2. (Use 1,000v. a.c. scale.)	X		Faulty switch at S2. Open winding in high voltage secondary of T1.

If there is voltage at the plate and screen of the amplifier and the circuit being tested uses grid-leak bias (Fig. 1), then the probable reason for no plate current indication would be an open cathode circuit or a defective plate milliammeter.

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is then likely to be in the meter failing to read and show grid current. On any of the tests mentioned above, don't hold the key down any longer than necessary, as the amplifier tube will draw excessive plate current when no excitation is reaching it.

In Table 3 all voltage measurements are made in the same manner as in Table 2, with the exception of the check at point 10. This is the grid of the amplifier and the voltage will be negative with respect to chassis. The meter leads should be reversed for this test, positive lead to chassis ground and the negative lead for testing. Also, a 2.5 mh. r.f. choke must be connected in series with the test lead when checking at point 10. Otherwise, the test meter will detune the grid circuit and no reading or an incorrect one will result. If your transmitter has an r.f. choke between grid and grid leak (R2), then you won't need to use another r.f. choke; the test probe can be touched to the junction of the r.f. choke and the grid leak for the voltage check. If your test meter is the 1,000 ohms-per-volt type, then use the highest voltage scale for this test. The highest scale puts the least resistance in the voltmeter circuit, and the shunting effect on the grid leak is minimised. If a v.t.v.m. is used for testing, then it usually isn't necessary to use an r.f. choke with the probe.

#### ADDITIONAL TESTS

If grid and plate current are obtained and the transmitter doesn't work, then the trouble should be in the amplifier tank circuit. Continuity checks should be made to determine if there are any wiring mistakes or bad connections. In the case of a pi network as in Fig. 1, the output capacitor C7 should be set at maximum capacity and C6 tuned for resonance as indicated by the dip in plate current. If the tank circuit resonates, then you can be reasonably sure that the transmitter is working and your problem is one of loading or shorted C7.

If the transmitter is a kit or homebrew job, the most common trouble encountered is short circuits. This can be due to bits of solder or wire getting into spots they shouldn't be in, and it sometimes takes considerable searching to find them. It is a good idea to make a few resistance checks before applying power to a newly built piece of gear. The power supply B+ line is usually above chassis ground by the value of the bleeder resistor. A quick check is to switch your test meter to the high resistance scale and connect one lead to the B+ line and the other to chassis ground. The ohmmeter will quickly show the presence of any shorts.

Once you have the piece of equipment working it is an excellent idea to make a record of voltage readings at different test points. Suitable points would be:

- (1) Output of power supply.
- (2) Plate voltage of amplifier and oscillator stages.
- (3) Screen voltage of amplifier and oscillator stages.
- (4) Grid voltage.

These checks should be made with the transmitter operating into a load. The next time the rig acts up you'll have a record to refer to which will probably make your job easier.

It would be impossible to completely cover the subject of trouble shooting in the space permitted here. Such things as self-oscillation, parasitics, etc., are treated in "The Radio Amateur's Handbook."

TABLE 3

#### No Grid Current Indicated

Step 1.—Check for voltage at point 11. If there is none, then check at point 6 to see if the power supply output is present. If the supply is not functioning, refer to Table 2 for trouble shooting. Voltage at point 6 and none at 11 indicates bad wiring or open RFC1.

Step 2.—Voltage at point 6 and none at point 12 indicates bad wiring, open screen dropping resistor or shorted C1. Check resistor with ohmmeter. Check C1 by removing oscillator tube and measuring resistance between point 12 and ground.

Step 3.—Turn off power and switch test meter to read ohms (high resistance).

Connect one test lead to oscillator grid, point 13, and the other lead to the cathode, point 14. Meter should show approximately the same resistance reading as value of R1. If not, it indicates bad wiring, grid to cathode short in oscillator tube, or resistance of R1 has changed.

Step 4.—Leave one test lead at point 14 and move other lead to point 15. Meter should show continuity. If not, it indicates bad wiring or open RFC3.

Step 5.—Move lead at point 15 to the grounded terminal of key jack and leave attached at point 14. Open and close key. The meter should read when key is closed, indicating continuity from oscillator cathode to chassis ground. If not, check wiring to key.

Step 6.—Turn on power, switch meter to read d.c. high voltage, connect positive meter lead to the chassis and make voltage check at point 10, amplifier, with key closed. Failure to obtain reading when C3 is resonated (see text) indicates bad wiring, grid-to-cathode short or faulty components at C12, LIC3, C13, or R2. Depending on the type of test meter used, an r.f. choke may be needed in series with the test probe. (See text.)

#### PREDICTIONS FOR FEBRUARY, 1958

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E. AUSTRALIA — S. AFRICA  
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#### USING MODERN VALVES IN THE TYPE 3 RECEIVER

Editor "A.R.,"

Dear Sir,

I desire to disassociate myself from the article which appeared under the above heading and my name in the November issue, although it does bear some resemblance to a manuscript submitted by me.

Yours faithfully,

Norman Boase.

# REMEMBRANCE DAY CONTEST, 1958

## MODIFICATION TO RULES

Following the directive given to it at the Federal Convention, the Federal Contest Committee has gathered suggestions from members in the Divisions and from Contest Committees where they exist.

The suggestions which appear below are the results of careful calculations and the discussions on what was really being aimed at in the Contest. These aims seemed to be threefold—

- To provide a lively exchange of contacts;
- To give an incentive for every Amateur in Australia to come into the Contest.
- To have an equitable scoring table and an incentive for each Amateur to contribute towards the winning of the State trophy.

The rules as they stood, gauging from the results and a survey of the stations listed in the logs, fulfilled (a) and (b) but left much to be desired in (c). Only the top six entrants in each Division contributed their score towards the gaining of the trophy. All those others who made more than the qualifying number of contacts gave away points to the top six in the other Divisions.

In response to suggestions by the F.C.C. the VK6 Division has put forward this scheme:—

State score to be calculated by the formula:

$$\text{Average of the top six Logs} + \left( \frac{\text{Logs Entered}}{\text{State Licences}} \times \frac{\text{Total of Points}}{\text{from all Entries}} \right)$$

It can be seen that all entrants whose scores are not in the top six now contribute to the State effort; thus the larger States like VK3 who, with 70 logs, scored 14,280 points (the best in Australia) will benefit from this scheme.

However, the F.C.C. was still not satisfied that the ratio  $\frac{\text{Logs entered}}{\text{State licences}}$  was the best one to use and after working on the table (based on the scores for 1957) and looking at the comments made by the various Divisions during and since the Convention, this formula is suggested:

$$\text{Average of the top six Logs} + \left( \sqrt[3]{\frac{\text{Logs Entered}}{\text{State Licences}}} \times \frac{\text{Total of Points}}{\text{from all Entries}} \right)$$

State	Total Points	Logs entered State licences	Bonus	Average top six Logs	Points Scored
VK2	12,046	$59 \div 1,156$	615	690	1,305
		$\sqrt[3]{59 \div 1,156} = 0.23$	2,770	690	3,460
VK3	14,280	$70 \div 1,093$	915	790	1,705
		$\sqrt[3]{70 \div 1,093} = 0.253$	3,512	790	4,302
For 1958?		$\sqrt[3]{140 \div 1,093} = 0.357$	5,098	790	5,888
VK5	13,549	$86 \div 416$	2,560	737	3,297
		$\sqrt[3]{86 \div 416} = 0.454$	6,151	737	6,888
VK6	7,347	$85 \div 219$	2,851	701	3,552
		$\sqrt[3]{85 \div 219} = 0.623$	4,577	701	5,278
1958?	15,000		8,345	701	9,046

This tends to off-set the very low ratio that the larger States find difficult to overcome and provides a further incentive to those States to get busy and win the trophy; this, VK6 had in mind when their suggestion was made.

The Committee wishes the Divisions—and that means each member through his Council—to adopt either of these formulae for 1958 and 1959 and to forward their votes to the F.C.C., Box 1234K, G.P.O., Adelaide, before the 31st March.

Study the table carefully and note the variations, particularly to the VK2, VK3, VK5, and VK6 scores, brought about by the application of the formulae to the 1957 scores and the possible improved log entry for VK3 and the improved scoring for VK6 which could take place in 1958.

The scoring table is considered suitable.

A further amendment is to Rule 2, to which will be added: "Portable/Mobile operation means that the sta-

tion is not connected to any private or public power plants or mains."

Ratification is required for this change.

Can VK3 push their entry up to 200 logs? And what about VK6 to 15,000 points? That's the question—otherwise note how the scores close up the gap between each State on this year's results when that square root ratio is used.

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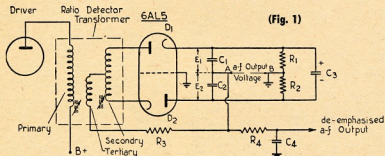
Regrinds ..... £1/10/0

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# RADIOTRON TELEVISION VALVE SERIES

## THE RATIO DETECTOR

The requirements of the sound detector in a television receiver are rather varied, and amongst the most important is the need to suppress amplitude variations of the frequency modulated 5.5 Mc/s carrier. In an attempt to gain this a-m rejection without the use of a special limiting stage, the ratio detector was developed. The stage driving the ratio detector is now arranged to amplify for low input levels and to act as a limiter (still with considerable gain) when the input rises beyond a predetermined level.



The voltages applied to the two diode circuits (referring to Fig. 1) are each the vector sum of the tertiary winding voltage and the appropriate half secondary voltage. The normal phase relationships existing in coupled circuits result in a phase difference of  $90^\circ$  between the latter two voltages when the incoming signal is at the centre frequency, i.e., in the condition of zero modulation. This phase difference varies as the instantaneous frequency is affected by the degree of modulation and causes a variation in amplitude of the voltage applied to the diode circuits. One increases and the other decreases as the instantaneous frequency increases and vice versa. Thus the frequency deviation of the incoming signal is converted to an amplitude variation of the voltages applied to the diode circuits.

C3 is a large capacitor which becomes charged in the presence of a carrier and plays a major part in the suppression of amplitude modulation of the input signal. The discharging time constant of C3 through R1 and R2, the diode load resistance, is long compared to the period of the lowest audio frequency to be detected (usually about 0.2 seconds). The voltage across C3 is hence maintained constant over short intervals of time.

Consider the operation of the circuit at a time when the frequency of the incoming signal differs from the centre frequency by a deviation,  $\Delta f$ , such that the voltage applied to D1 is greater than that applied to the diode D2. The current flowing in C1 must be greater than that flowing in C2. Hence the voltage developed across C1 (E1) is greater than that developed across C2 (E2). The sum  $E1 + E2$  is held constant by C3 and hence point A must be negative relative to point B (earth). So it can be seen that the instantaneous voltage at point A will vary in proportion to the difference between E1 and E2, and hence to the instantaneous value of  $\Delta f$ , and at a rate equal to the rate of change of  $\Delta f$ . Thus the audio output voltage follows the audio modulation of the sound carrier.

R3 is a small resistance which limits the peak diode currents, thus tending to reduce the effects of unbalance in the two halves of the circuit. R4 and C4 form the de-emphasis network which is necessary to correct for the pre-emphasis used at the transmitter to gain an improved signal to noise ratio.

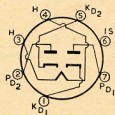
A twin diode ideally suited for use in such a circuit is the Radiotron 6AL5. The performance of a circuit using the 6AL5 is described in Radiotronics, June, 1957. The 6AL5 is also suitable for use as a video detector, a.g.c. clamp and in other applications.

For further information on the 6AL5 and other Radiotron Television Valves, consult the TV1 Booklet. Additional copies of this advertisement are available free and post free on request.



### 6AL5†

#### SOCKET CONNECTIONS



bottom view

- Pin 1 — Cathode of Diode No. 1.
- Pin 2 — Plate of Diode No. 2.
- Pin 3 — Heater.
- Pin 4 — Heater.
- Pin 5 — Cathode of Diode No. 2.
- Pin 6 — Internal Shield.
- Pin 7 — Plate of Diode No. 1.



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## CORRESPONDENCE

The opinions expressed in these letters are the individual opinions of the writer, and do not necessarily coincide with those of the publishers.

### S.S.B. ACTIVITY

Editor "A.R." Dear Sir,

Many have the impression that lack of activity on s.s.b. does not justify the effort required to convert to that mode of operation.

As at 0815 hrs. G.M.T., 2nd January, 1958, I have worked the following 100 countries on two-way s.s.b.—

CP2BP	HP	LU	VP7
BVIUS	HP	LU	VP9
C2HVV	HR	MP4KAM	VQ4
C8NM8	HSIA	OA	VR2
C05LF	HZ1AB	OD5BZ	VS1
CP5EK	IILOV	OH2OJ	VS2
CR9AH	JA	OH0NC	VS4JT
KX5AF	KAOCS	ON4	V8SAT
DLs	KB6	OQ5GU	V86
DU7SV	KC4s	OZ	VU2
EAs	KC6	PA0	W
EAs9AR	KG1BO	FJ2MC	XE2JK
Els	KG1AQ	PJ	XV5A
Fs	KG6	SM	Y1A1A
FP8	KH6	SV0	Y1UAD
FQ8	KL7	SV0 Dodec.	YV5LF
F87RT	KM6	TF2	ZB1CZ
Gs	KP4	TG9AD	ZC4DA
GD3GMH	KR6	TI2HP	ZD4
GI	KS6	UA1DZ	ZE6
GM	KT1DD	VE	ZL
GW	KV4	VK	ZS6
HB9	KW6	VP2 Leew.	ZS8
HC2AGI	KX6	VP2 Wind.	3A2AH
HE	KZ5	VP5	3A2TP

—C. B. Edmonds (VK3AEE)

### OBlique STROKE F.O.C.

Editor "A.R." Dear Sir,

It's about time some reputable organisation such as our own W.I.A. took up either with the I.A.R.U. or at least our own Postmaster-General's Department this growing habit of some self-styled select group who insist on signing "oblique stroke F.O.C." after their call signs.

To me it is quite illegal and why something has not been done already beats me. For 20 years now I have been licensed VK3BG and that is the call I have always signed—nothing more and nothing less.

The F.O.C., I am told, stands for some privately-sponsored "First Operator Club" and to be a member one must be "invited" by a certain number of members. Much the same, perhaps, as any decent club, except that in many cases in Australia I know of potential members who go around the bands canvassing for sponsors and this is where F.O.C. becomes a little hairy.

The addition of these three letters—F.O.C.—is perhaps the worst example of snob-value I have seen in our hobby. For anyone to lower himself to be a member of such a clique, I think, shows discredit to the true Australian democratic spirit—to me one of this country's most cherished possessions.

It has become so bad that some of the adherents to this most annoying "I am better than you class" have the cheek to sign "oblique stroke F.O.C." even to their CQs.

I appeal to Federal Executive to take this matter up and stop it immediately. It is most un-Australian, undemocratic

## S.W.L.

Ian J. Hunt, WIA-L3007  
211 St. George Road,  
Northcote, N.16, Vic.

I imagine that as conditions have been fairly good of late everyone is hard at the job of listening for those elusive new countries, as in a period of two months I have received only two letters. Now, come on all you a.w.l.s., you'll need to do better than that. The letter will definitely be no a.w.l. section in this magazine. To have notes we must have news, and as I haven't a staff of paid reporters to chase up news for me, I have to depend on your letters. So how about doing the right thing and drop me a line telling of your activities.

First off in my mail box I find a letter from Don Grantley, of Holbrook, N.S.W. Don, in between looking after his XYL's harmonic, cows, garden and auto, manages to squeeze in a little listening. He states that he is lucky in having a good location, GRM free (what a blessing!) and that just wire trailed out of the window for an antenna seems to work out OK. Don has recently logged his 100th country—a KG1.

The acquisition of a new receiver and erection of several beam antennae should assist him in increasing this total. Don has been doing most of his listening on the c.w. portions of the bands. Another of his activities lately has been the dirty job of fighting bush fires. An ex-R.A.A.F. man, Don makes the following suggestion: "In view of the increased interest being shown in s.w.l. groups of late, how about some of the ex-R.A.A.F. wireless unit operators coming into the picture and renewing your acquaintance with radio." I myself think that would be a good idea and would also apply to other ex-service wireless ops. Any of you who may be interested could drop me a line at the address shown above and I'll supply whatever information you require.

Dennis Holmes, of Warrnambool, is my only other correspondent this month. Until recently he has been confined to a.w.ling with a dual wave receiver covering only the 40 and 20 metre Ham bands. However, now with an ARS he has been keenly listening till all hours. Recently Dennis has heard HS1B and

and time wasting. I appeal to other members of the W.I.A. who have any Australian democratic spirit to dodge these "oblique stroke F.O.C." calls like the plague. So far as I am concerned they're no different from "scab labour"—nobody wants to work with them.

—Roth Jones (VK3BG).

VR2DA on 15 mx and plenty of VKs and Ws on 15 and 20 s.b. He finds listening to the s.b. stations real good fun. His antenna at present is a dipole.

To catch up with the doings of the VK3 Group, here are some details of recent events. November Group Meeting.—At this meeting we were pleased to welcome Ian McNabb of Hight, T. F. Gardiner of South Yarra, and Mr. L. D. Sykes who is a member of about 30 years' standing of the Institute. At this meeting it was decided that the December meeting would be a social evening. Much time was spent in discussing such interesting things as cream cakes, sandwiches, pies, etc., and everything else to delight the hungry. As it was also decided to begin several contests for members, the details of which will be published when they have been finally worked out.

December Group Meeting.—Probably due to it being holiday time not many members were present. However, a good time was had by all. The hours flew quickly by while members informally discussed every worthwhile aspect of a.w.ling. There was some delay in obtaining access to the soft drinks which were locked in the t.c. room, but a phone call brought Alan 3AEL to our rescue. We thank you very much Alan for saving the DX to miss us in this way. After the drinks became available the feast was begun. There was food galore, but everyone hopped in with a will and disposed of the major portion of it in quick time. We would like to extend our thanks to the Divisional Council who supplied us with the soft drinks and to Bert Stebbing, WIA-L3000 who although not able to be present, supplied a really large box of sandwiches.

Personal News.—Recouma in Melbourne was Ken Robertson, WIA-L3008, of Fort Albert. Whilst in town he apparently enjoyed himself seeing as much as possible in the time spent here, including some of the more adventurous back home safely with his load of new gear to try out. Bert Stebbing has by all accounts been working very hard all day due to the Christmas-New Year rush, but by now should be enjoying a holiday somewhere up in

Michael Ide is understood to have obtained a nice long pole, so antennas should soon be smartly erected at his QTH. Nothing much has been heard of the two Group reporters—Frank Nolan and Geoff Morris—of late so we assume they are busy bringing in all the latest DX. Yarru truly has now constructed a rotary W3K beam and hopes soon to have it erected on top of a 40 ft. mast. Higher gain tubes in the r.f. section of the rx has lifted the countries heard total to 157 and the going is becoming tough as far as new ones are concerned.

One interesting station, heard was XV5A in Saigon, S.E. Vietnam. The DELI station is operated by a member of an American advisory mission to the Vietnam Government and the operator's name is Randy. Details of his prospective operation have been given in recent issues of "CQ" and now he has appeared. He stated that he was running only 20 watts from a ground plane antenna and was transmitting only the upper sideband with carrier. Several VK stations managed to work him on 15 and 20 s.b. and 20 m. He is sure to be in great demand. FB3AH was heard on 15 mx phone.

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# DX

Frank T. Hine, VK3QL  
30 Abbotsford Road,  
Homebush, N.S.W.

Band conditions have been erratic and no two days have been the same as was Sydney area has been concerned and this seems to be the opinion of DX stations. 14 Mc. has been notable for the rarer DX stations that have been heard calling CQ after CQ with no takers. I call to mind hearing JT1AA, EA8CE, FB8XX and listening to VQ5GJ and VQ3JTW QSO each other because they could not raise DX. My own activity has been on 14 Mc. seeing what QRP—15 watts—and a Windom card, which was quite fair, so you "young squirts" have no fears about starting off on something small for your DX hunting.

If space permits, I think some details of U.S. Amateur activity, which 2AGH passed on to me, may be of general interest. The number of U.S. Amateur licenses in 1950 was 80,000, at present about 160,000 and the estimated figure for 1965 is 200,000. 49% buy their transmitters. 2% are using inputs under 35 watts, 9% 35-75w, 40% 75-100w, 36% 150-500w, and 13% over 500w. Interesting figures aren't they. 78% use a.m. phone, 62% c.w., 9% s.s.b., 8% n.b.f.m., 3% teletype and 1% tv. 7 Mc. is most popular with 67%, 28 Mc. 54%, 14 Mc. 48%, 50 Mc. 33%, and 144 Mc. 33%. No figures are given for 21 Mc. Engineers are the greatest number of licensees at 21%, then Students at 19%.

## NEWS AND NOTES

Cards are now being returned from the S.A.R.L. marked "non-member" and information to hand shows the Belgian Bureau has adopted the same policy. My own personal opinion is that if this practice becomes a general policy, QSLs will become a thing of the past as Amateurs will not waste time sending a card if there is a possibility of it being returned to him. The certificate hunters will have to send all QSLs direct with IRC's to get their cards. Work out how much that is going to cost!

If you worked ZD2AO and still need his card, try again to G2AO.

Cards for FP8AA should go to K2CPR.

ZL1ABO is reported to be active from the Kermadecs on 3844 Kc. (3CX).

Yemen should be represented by the time you read these notes with a phone station using Ikw—call sign unknown.

For his recent activity, ZM6AV was using the rig of an American YL who happened to be passing through on her way to Fiji.

UISKAE has a YL operator for those after YLCC.

VQ8AJ is active from Chagos Is.

9K2AN stated he was in Kuwait. I have seen no comment that there has been a change of prefix from MP4K.

\* Call signs and prefixes worked.  
z—zero time—G.M.T.

## ACTIVITIES

5.5 Mc.: Nil reports.  
7.5 Mc.: 2AIR: W\*, 3QL: W\*, Den Grantley: W, K08AE: WIA-L3040: JA1AM.  
14 Mc. C.w.: 2AIR: HP1LO, CN8IF, 4STWP, OA4FA\*, XZ2TH, VU2AJ\*, 4X4FA\*, SV0WP\*, IT1AI\*, ZC4IF, ZK2AD, C08DL, VQ3JTW, KP4AZ\*, VQ4AQ\*, UA0AM\*, OD6LX\*, VP2LU\*, CT1AB, CN8FG\*, JT1AA\*, LU3ZO\* (Shetland), VQ3JTW, CR8AC, VQ2EH, FB8XX\*, FB8ZZ\*, FB8CD, VQ8AJ, PYTAN, U, UO3KA, UO3KAA, S02D, 2AMB: CT3AB, CN8GZ, CN8FH, C02BM\*, XE1H, V8SAC, XZ2TH, FL8AB, VP8IB, VQ8RF, VQ8SB, VQ8T, JT1AA, 3QL: UP2KCB, FB8XX\*, VQ4KRL\*, EA8AA\*, XW8AE, UISKAE\*, VQ5GJ\*, JT1AA\*, OK3LD, H01LH, X03G, FB8JM, UM8KAA, S05TH, CT2BO, KG1DG, OY7MI, CR8AC, UO3KAA, VQ8AJ, V8R7C, EA8CE, 8K2AN, VQ3JTW, ZKE: UA0A\*, UA0AM\*, XZ2TH\*, C08DL\*, CT3AB, FL8AB, XW8AE\*, PJ2AE\*, EA4CS\*, OK1KIR\*, YU1AG\*, PY8YG\*, LU5AQ\*, LU8NA\* and many of the regular Europeans. 5RB, 6ZC, VPEBK\* (Georgia), VQ8AS, LU3ZO\*, 3CX, ZC3AC, FL8AB, FB8CE\*, XZ2AD, CR8AC, CR18AA\*, U0KAA\*, HP1LO\*, OA4FA\*, HK13C\*, FB8BD\*, EA8IF, 4DO: CT3AB, XW8AG\*, HC1HL\*, SPIKBT\*, FL8AC\*, OQ5WE\*, FAPCP\*, F3PWW\*, ZELU\*, KC5CG, JT1AA\*, VUSG\*, U0KAE, CN8D, ZC3AB, FB8XX\*, UC2KAD, UL7GN, UN1AE, UP2KCB, CR8AC, VS4IT, LZ1KBA, OQ5IE, CN8FG, SV0WP, VQ5GJ, ZS8LQ, ZETIG, ZD0T, SVK\*, S0M: DUD3O\*, C02JZ\*, LASU\*, UR2AR, C08DL, KR8GY\*, CT3AB, H82CL\*, ZS6AJ/S/P5 (don't know this one), 4STYL\*, SLO: CT3AB, H12CL\*, EA8IF, UA0AM\*, UO3KA, CR8AC, XW8AE\*, 5RK: JA\*, VS1G\*, TLZ: CT3AB, LZ1KAW\*, VQ4GT\*, C02BM\*, U0KAA, UA8KAC, K03UB, JT1AA, U0KAE, 6ZC, C02CR, CN8FH, DUTSV, EA8BA, PA8RJ, H01LD, HZ1AB, K06FA\*, KG1GY, UL7KBA, UO3KAG, Q0QVN, UN1AE, 4STWP.  
14 Mc. Phone: 2AMB: 3QL: W\*, VQ4AQ, 2AOM: DL6QX\*, FASCF\*, C08LS\*, HK4DP, H02HH\*, I1AMU\*, GZAMG\*, 4STYL\*, 5A1TV\*, V8SAJ\*, ZM6AV\*, VEA3X\*, VR8A\*, VR8C\*, VR8D\*, VR8DA\*, VR8B\*, VR8E\*, 4DO: HK1TLX\*, FASCF\*, UA0KJA, VQ4AQ, ZD0T, 5HW: UA0LA\*, UA0KFG\*, VR8\*, VQ1Q, H01LB, YV8A\*, H01LA\*, BV1UT, 2LD\*, C02QO\*, Rod de Balfour: I1SM, I1AMU, EA1JE, CN8IF, SU1ME, VQ4AQ, VU2CQ, UZ1AK, 4STYL, H02LD, C02QO\*, VU2BK, KZ2AD, ZS8BE, VR8A\*, VR8T, HC-C02OS, C02CY, VR8C, VR8IB, VR8TC, HC-1PG, HC1AE, WIA-L3040: FASCF, BV1US, K06FA\*, ZM6AV, VU2CQ, KR8MJ, VU2SG, VU2BK, KZ2AD, ZS8BE, VR8A\*, VR8T, HC-C02OS, C02CY, VR8C, VR8IB, VR8TC, HC-4HW, 4X4DC, VK0DC, VU2BY, ZM6AV, EA-3KJ, OD5AB, I1ZBK, VU2BK, VU2SE, ZD-6DT, ZS2FA, VR8DA, EA3LI, PY2CK, EA3EL, HIFZ.  
21 Mc. C.w.: 2AIR: W\*, CE\*, ZR: TIC8AH, ZS1KQ, SP8AK, LU8AV\* and many Europeans, TLZ: HE8LAC\*, UB5FJ, UBSKAB\*, SV0WP\*, VQ4LQ\*.  
21 Mc. Phone: 2AOM: FE8AH\*, OQ5RD\*, HL-2AJ\*, UA0GF\*, XZ2TH\*, YN1MF, VPSR\*, KR8RY\*, C02RC\*, VK8AT\* and many regular Europeans. Rod de Balfour: MP4KAC, LX1DC, KR8RT, VR8DA, VPSDL, VPSRF, also many regular Europeans.  
28 Mc.: 2AIR: W\*, JA\*. Rod de Balfour: V48RO, W.

## QSLs RECEIVED

Pastebord is somewhat light on this month, 2AIR: H81MQ/FL, FB8ZZ, ZJ2PA, XZ2TH, 2AMB: HC1HL, FYTYF, FB8ZZ, XZ2TH, FM-TWT, S0V: PJ8ME, UA4PL, UA0AM, VPSPT, 3QL: ZK2AD, HK3JC, KR8B: VR8TC, ZS2MI, 8CX: FP8AS, TLZ: K56AF, KB8BH, Rod de Balfour: LU8L, CX3AC, PSRT, VP5CM, ET2MZ, WIA-L3040: KX5BQ, KZ5IF.

This month we welcome a number of new contributors to the column, and my thanks to them for their contributions. Thanks to 2AIR who is now thinking in terms of Quad antenna, 2AMB who found conditions erratic, 2ASQ making the most of his holiday back home to get amongst the good ones on 21 Mc, ZER who at this stage gets the most QSLs in VK3, 8CX who manages to 21 Mc. and the good ones when they pop up. 8KB is being reported as one of the most consistent VK w. sigs, 2AOM, and 4DO who keeps the VK4 prefix on the band. A special appreciation to 5RK who although he doesn't do much DXing himself, went to the trouble to QSP 5GM, 5LQ and 5FW activities. Rod de Balfour for his 7LZ and found conditions in VK7 n.s.g. Den Grantley who has improved his reception by a new antenna, Barney Smith who would like to see a S.w.I. Group in VK2, and last but not least a new S.w.I. contributor in John McEwen WIA-L3040 who is pleased to see the end of his school exams.

One last thought before closing, the erratic conditions on 14 Mc. have forced many of the R.T.T.V. commercials to go to telegraphy and consequently give their calls, and without exception they have all been using "R" as the first letter, which is U.S.S.R. allocation. What pressure are they going to bear at the forthcoming conference? Are we going to have a representative to try to hold our existing allocations?

## QTHs OF INTEREST

CN8FG—Via WUFPQ (2AIR).  
CN8IF—Box 80, Navy 214 P.O., N.Y. (2AIR).  
VQ8AM—Mapou, Mauritius (2AIR).  
VP2VG—Via W4CG, ex-KV4BD, C/o. C.A.A. Fort Meyers, Florida (2AIR).  
OX3DL—E.D.R.  
HE8LAC—Schaan 425.  
9K2AN—Box 736, Kuwait.  
FB8XX—Via FB8IC.  
FL8AC—BP121, Djibouti (4DO).  
OQ5EW—Kolwezi, near Elizabethville (4DO).  
VQ4AQ—Box 12, Navy 115, P.P.O., New York (BERS196).  
ZC8RF—Marine Dept., Sandakan (5RK).  
KG4AE—Box 12, Navy 115, P.P.O., New York (BERS196).  
KG1HL—A.P.O. 121, C/o. P.M. New York (BERS196).



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# NOTES

## FEDERAL

### RESIGNATION FROM FEDERAL EXECUTIVE

It is with regret that Federal Executive notices members that Bill Falconer, 3AWF, has resigned from his position of Business Manager. During the time Bill has been with Executive, his thoughtful consideration has been a powerful factor in the solution of many problems. His training as an actuary has served good purpose in making many a detailed analysis of various surveys and results. However, he finds that other commitments will not allow him to continue to give to Executive the time he feels it deserves. It is certain that all members will be grateful to Bill for his efforts and will await the day when time permits him to return to some official position.

### LIST OF PERSONS WHO QUALIFIED FOR AMATEUR OPERATORS' CERTIFICATES

- New South Wales**
- \*R. R. Butler, Black Forest, Bilingara.
  - F. J. Caton, 23 Jeffery Ave., North Parramatta.
  - \*J. E. R. Cleary, 191 Bruce St., Merewether, 2N.
  - \*A. Cork, 18 Bank St., Molong.
  - \*J. S. Cumming, 8 Scottie St., Castlerigg.
  - \*O. F. Dent, 20 N.S.W. Crescent, Forest, Canberra.
  - \*H. de la Motte, 1/2 Consul Rd., Brookvale.
  - B. K. Hall, 2/6 Melody St., Coogee.
  - W. G. Kirchman, 33 Walsend St., Kahlbach.
  - \*J. W. Lambert, Kooba St., Burrell.
  - A. J. C. McMahon, 1 Whitton St., Griffith.
- Victoria**
- \*F. A. Auld, 14 Sargood St., Toorak.
  - \*W. J. Bell, Slaydon Park, Tanyong.
  - \*R. H. Blake, Telangut East via Horsham.
  - \*J. E. Brown, 33 Greveling Rd., West Wend.
  - D. McE. Eales, 27 Belle Vue St., Lilydale.
  - \*E. G. Egan, 4 Edith St., Caulfield.
  - \*D. J. Goss, 1 Eumeralla Rd., South Caulfield.
  - V. E. Maddern, McDonald St., Murltoa.
  - J. L. Morris, 224 Burwood Rd., Burwood.
  - \*D. Myles, 73 Marley St., West.
  - \*E. Norton, 43 McNamara St., West Preston.
  - A. Parker, Post Office, Tawonga South.
  - W. H. Payne, 40 Park Crescent, Kew, E.4.
  - \*J. A. Retchford, 9 Summit Rd., Burwood.
  - \*J. Russell, 6 Narracan Ave., Yallourn.
  - \*G. W. Small, Box 62, Rainbow.
  - \*R. W. Wilkenson, 25 Lloyd St., Belmont, Geelong.
- Queensland**
- N. Bignell, 15 Scarborough St., Seagrass.
  - H. E. Brown, 23 Fegan Drive, Moorooka.
  - \*J. M. Burton, 30 Kelsey St., Camp Hill.
  - R. A. Collins, 150 Ashgrove Ave., Ashgrove.
  - \*G. W. Houghton, Station Rd., Oxley.
  - A. R. Kruger, 295 Tingle Rd., Wynnum.
  - \*T. E. Meredith, 69 Thorn St., Ipswich.

## CONTEST CALENDAR

Compiled by W.I.A. Fed. Contest Com.

### ★

#### ROSS HULL MEMORIAL—

Notes: 90-54, 50-60 Mc. bands now contest and separate bands for overseas contacts when compiling scores.  
Return of Logs: Postmarked not later than Saturday, 1st March, 1958.

#### NATIONAL FIELD DAY—

Return of Logs: Postmarked not later than Saturday, 15th February, 1958.

#### REMEMBER DAY CONTEST—

Dates: Saturday, 16th August—Sunday, 17th August, 1958. Duration: 1800 hours E.A.S.T.—1759 E.A.S.T.  
Rules: See amendments this issue.  
Voting return date: 31st March, 1958.

#### A.R.R.L. DX COMPETITION—

Dates: Phone—February 7 to 9; March 7 to 9. C.W.—February 21 to 23; March 21 to 23.

- \*D. Moller, R.A.A.F. Hdg., Sturt St., Townsville.
  - \*W. S. O'Donnell, 24 Yates St., Railway Estate, Townsville.
  - E. J. Parow, P.O. Box 290, Dalby.
  - \*V. Tarhanoff, 30 Kelsey St., Camp Hill.
- South Australia**
- \*C. A. Appleby, 7 Wolsley Tce., Woodlands Park.
  - \*M. A. Bone, 1 Dean Grove, Marryatville.
  - \*J. R. Brunker, 39 Rowland Rd., Milton.
  - \*L. R. Burton, 35 Angus Ave., North Walker.
  - R. L. Dyer, 61 Third Ave., Sefton Park.
  - \*S. Gabb, Post Office, Nairne.
  - H. W. Hancock, 13 O.G. Road, Klemzig.
  - C. G. Luke, 16 Kennaway St., Tumby Bay.
  - \*P. A. Rowe, 23 Fisher St., Fullarton Estate.
- Western Australia**
- B. G. Cook, Magnetic Observatory, Watheroo.
  - \*W. F. Dunn, Box 15, Hyden.
  - D. J. Lyall, 64 Mackie St., Victoria Park.
  - \*L. G. Rock, 36 Essex St., Wembley.
  - M. H. Saw, 28 Auborough St., Double Bay.
  - \*C. G. Woods, 190 Margaret St., Ashfield.
- Tasmania**
- \*M. G. Foster, 22 Married Qrtz., Brighton.
  - M. F. McGinnis, Cable Station, King Island.
- Territory of New Guinea**
- R. H. Murphy, C/o. Dept. Posts and Telegraphs, Port Moresby.
- \*Qualified for the Limited Certificate.

## FEDERAL QSL BUREAU

The Danish Society (E.D.R.) advise that the new QSL Bureau address is Box 335, Aalborg, Denmark. OZ2N, who has been the Manager for over 20 years, has now retired and the duties have been undertaken by OZ2NU.

The rules for the European (W.A.E.) DX Contest for 1958 have just come to hand. As a result it was not possible to publish same prior to the commencement of the Contest. The contest periods: C.W.—1800 G.M.T., 3rd Jan. to 2400 G.M.T., 5th Jan.; Phone—1800 G.M.T., 4th Apr. to 2400 G.M.T., 6th Apr. Some of the rules have been altered slightly and the scoring varied. Entrants are advised to get a full copy of the rules from their Divisional Bureau or from the Federal QSL Manager.

The EI QSL Bureau has a new address which is 39 Boctown Avenue, Blackrock, Dublin, Eire. They also state that 'w.l.r.' or 'Listeners' cards will NOT be handled.

An outsize in QSL cards comes from a small island—GD4VH, who works mainly on 7 Mc. c.w. around 1840. Other call signs held by GD4VH are G5FV from back in 1923, and G3BIE post-war.

Writing on the eve of his departure for Moscow, Doug Twigg gives some interesting details of the Hams in this year's party, and of some of the objectives of the 1958 expedition. The full list of Hams in the 1958 team is as follows:

**Macquarie Island—**  
George Heindricks, Radio Supervisor, VK0KT (ex-VK1J).  
Harry Knox, Radio Officer, VK0KH.  
Tom Caldwell, Radio Officer, VK0TC.

**Mawson—**  
Doug Twigg, Radio Supervisor, VK0JL (ex-VK1J Macquarie, ex-VK1JL, ex-VK1JL).  
Alex Brown, Radio Officer, VK0DA (ex-VK1A Macquarie).  
Bob Oldfield, Radio Officer, VK0RO.  
Peter King, Radio Officer, VK0PK (staying for second year).  
Roy Arnell, Geophysical Assistant, VK0RA (ex-VK1RR Macquarie, and VK0RR, also staying second year).  
Ray Borland, Meteorologist, VK0RB.  
Bruce Cook, Geophysicist, VK0BC.

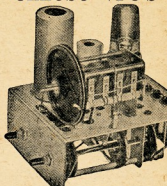
**Davis—**  
Elliott Trigwell ('Trig'), Radio Supervisor, VK0AT.  
Peter Turner, Radio Officer, VK0PT.  
The Macquarie contingent are already there and active, but the Mawson and Davis bunch did not depart until 3rd January and do not expect to be at their stations until mid February. On the way down they are installing

## SILENT KEY

It is with deep regret that we record the passing of:—

VK2MR—J. E. Stewart.

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an Automatic Weather Station, the location of which is expected to be on a small inlet in Davis Bay on the Wilkes Coast about the same longitude as Adelaide. The gear for this station will consist of two transmitters that operate simultaneously from lead acid batteries which are charged by wind driven generators. The transmissions are triggered off by a very accurate clock which puts the transmissions on the air every six hours. The transmissions consist of a call sign "VNX" sent about 14 times, break sign, two letters for barometer, break sign, two letters for thermometer, break sign, one letter for wind speed, one letter for wind direction, break sign. This weather data is repeated three times before the transmission closes. The frequencies of the transmissions are 7315 Kc. and 13545 Kc. Each transmitter has a power output of about 40 watts which is fed into dipoles. The transmissions will be intercepted by Macquarie Island and Davis and then be forwarded to Australia. They are expected to be in operation by the end of January.

A new 1kw. transmitter is being taken to Mawson to supplement the AT20s already there. Tape perforating and transmitting equipment is also to be installed to assist in handling the increasing traffic load. To be erected is a 100 ft. radio tower which is to be a vertical radiator for the m.f. homing beacon. An earth mat for this antenna has also to be laid.

Individual Ham activity at Mawson may have to be curtailed due to the large number of Hams in this year's party and a roster sharing the limited time seems to be the only solution. The main transmitters are in operation for approx. 15 hours daily, which is another factor likely to make inroads into Ham activity. It would appear that the greatest individual Ham activity will therefore come from Davis, where the commitments are less.

Bill Storer, VK2EG, Lot 11, Prince Charles Street, French's Forest, Sydney, N.S.W., has offered to handle the cards for the whole Antarctic bunch this year. His offer, I understand, has been accepted. It certainly has the approbation of the Federal QSL Manager.

Bill, VK2EG, now has the log of VK1GA. Cards are being printed in W land and are expected soon. Bill will then get to work and clean up all outstanding VK1GA QSLs. You deserve to "make" the Honours List, Bill.

Writer has 1956 and 1957 issues of "CQ" practically complete. They are hogging too much space in a small shack, so first in with the postage, cartage or what have you gets them.

Received a visit from Bill Ryan, EI8BC, currently radio officer on "Australind" and signing EI8BC/MM from that vessel when off

duty. Bill has a yen for VK and ZL. Likes our climate, scenery, customs, and way of life and may settle for ZL as a permanent abode later on. He hopes at conclusion of current voyage to get a few trips on one of the Star liners.

Ray Jones, VK3RJ, Manager.

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## NEW SOUTH WALES

The monthly meeting of the New South Wales Division was held at Science House, Gloucester Street, on Friday, 20th December. As is the practice for our Xmas meeting, a film night was held. A very excellent programme was presented by Mr. Haywood, of the P.M.C.'s Department, who showed a number of films from their library, included in the programme was "The Overland Telegraph Line", "The Channel Country", "The Olympic Games" together with a comedy "Hurly Harry". These films dealt with the technical as well as the general interest aspect of their subject and provided an excellent evening's entertainment for the members present.

Following the films, Mr. J. Reed, 2FR, gave a lecture on "Sputnik", illustrating by means of charts and maps, the orbit of the satellite around the earth and many other interesting points relating to transmission of signals from "Sputnik".

Votes of thanks to Mr. Haywood and Mr. Reed were moved by Messrs. Godsall and Cummins.

During the business portion of the meeting, the Chairman reported that the 25 kva. emergency power plant had been despatched to Sydney for installation at 2W1 Dural and the log book showed that it had less than 100 hours running. There were also a number of the latest text books on display which had been procured for the Divisional library. These will be held at 2W1 Dural until after the Hamfest when they will be available to members through the usual library service.

The meeting was closed at 10.15 p.m. to allow coffee to be served and members to have a final "natter" for 1957.

W.I.C.E.N.—At the invitation of Bill 2HZ a meeting was held at his home in Springwood on 6th December to discuss the formation of W.I.C.E.N. in the Blue Mountain areas. Those present were 2MZ, 2NK, 2ABK, 2QA, 2EV, Divisional W.I.C.E.N. Officer (2ARG) and Divisional President (2APQ).

Following the disastrous fires, the necessity for emergency mobile and portable radio equipment has been made more evident.

Discussion on the type of equipment most suitable and frequencies to be used brought

forward many ideas and it was decided to use the 5 mx band for local point to point operation. Further work in organising this network will be continued in January. All Amateurs in the Blue Mountains area are invited to contact Bill 2HZ.

During the latter part of December members of the Griffith Radio Club were called upon to provide communication links during the bush fires. Further work of the State Members with mobile equipment operated right up to the fire front and greatly assisted the authorities in maintaining communications between parties building fire breaks and with neighbouring towns.

Further progress has been made during December with the v.h.f. links to 2W1 at Dural. A 5 mx link from Gosford to Palm Beach and relayed on 2 mx to 2W1 Dural was very successful and allowed the members of the Central Coast section of the Division to participate in the Sunday morning broadcast.

The v.h.f. news has also been given over a 2 mx link from 2PR at GTH at Castlereagh. A relay from 2ASA at Wyong (a distance of 40 miles from 2W1 at Dural) gave some indication of the possibilities such links have in times of emergency.

Preparations are in hand for the Urunga Convention to be held on the Easter week-end. For those who are unable to attend this is the first week-end in April. Arrangements for the Convention are being handled by Noel 2AHH.

Members are reminded that their annual subscriptions are due on 1st March. Payment by cheque or money order will greatly assist the Treasurer.

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## VICTORIA

Well, another Christmas has come and gone and is nearly as far away again as ever.

Now that the New Year is well on its way, it is hoped that the usual resolutions have now been made and that they really bear fruit in the way you have planned. Although resolutions are much easier made than done, there is not much achieved without them, so let's put in the ocks, grit the teeth and get cracking. Even a resolve to keep the shack tidier this year is something. Anyway, I hope to do a few more this year.

No doubt most of you were listening to the Sunday morning broadcast on 22nd December and heard our President, Fred 3YS, give his Christmas broadcast to the Division. If not, then you will be interested to learn that Fred sent seasonal greetings to all city and country members and thanked all who have served the Division in any way whatever throughout the year. He especially thanked Jay Lancaster, our very active Secretary, and David Wardlaw, our Federal Councillor, who have given stirring service during 1957. Special thanks were also given to the South Western Zone for their very successful role as hosts to the State Convention, which was held at Colac on this occasion.

Thanks are also due to our worthy President for his guiding influence as the success of the last year's activities of the Division has been due in no small measure to his efforts. Our Institute doesn't run itself but

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must be nurtured along by such as Fred, and we are grateful for the time and energy now expended in the hobby. I am sure that you me, it has been quite considerable. Through the efforts of our President and his officers, the activities of the R.F.B. are in a position today, and this is some recompense no doubt for the work that has been done in the past. However, much has still to be achieved, and the greatest reward we can give any of our office-bearers is active participation in all the activities, either business or social, which they arrange for our benefit. This is very important, for unity is strength and we cannot afford to become lethargic with so much to be achieved. Your strong thought will prove the truth of this statement and every year the going gets tougher, so lend your support.

There is a serious side which we must not neglect there are other interests to suit the taste of all such as lectures at our monthly meetings, conventions, camps, to hunts, field days, visits to places of interest and listeners' group activities to mention just a few so choose your poison and decide to take an active part this year in your particular field of interest. Don't wait for someone to take your hand and ask you to come to the next Ham Radio Convention in any way. This is our hobby and we, the members, are the Institute which safeguards it. Our various clubs and technical societies are the Institute are the only means we have of justifying our use of the bands so don't leave it to the other side to look after our interests. Take hand your own.

The Magazine is another avenue for participation in Institute activities, so when you write various articles and technical subjects communicate in the way of technical articles or the like, put pen to paper and let it be known. Write your tributes and technical subjects, ferret out all the doings and news on your own and assistance in this way is always appreciated and very necessary. It has been decided to have a "Discussion Night" in place of the usual lecture at the first meeting for the year on Wednesday, 5th February, when the speaker will be invited to dear to your heart and give them an airing. Please take note that the rooms will be closed from 10.00 p.m. to 1.00 a.m. on Tuesday inclusive, while Mrs. May takes her annual holiday.

#### EASTERN ZONE

Hoping everybody enjoyed the Christmas break, and had an enjoyable day at the National Field Day which was held on the long January 16th. Don't forget to come along to the Eastern Zone Convention to be held in March at Sale. Most activities of the zone on two metres. Some good openings, when Ian 3AAV and George 3ZCQ worked 3ZAG and 5CH in Mount Gambier and also when 3ZAG and 3ZANQ in Warrambool. Stewart 3ZDD at Pakenham East (who is a 24-hour man) and Ron 3ZD worked a station in Launceston. No activity has been forthcoming from the rest of the zone as no local chaps have low frequency gear in operation at the moment. It seems to be increasing interest in six mX throughout the zone.

#### NORTH EASTERN ZONE

The North Eastern Zone Convention, held at Nalunga on 15th December, was quite a successful occasion with sixteen members and a number of guests. The following were present: 3AXW, 3ALE, 3PF, 3AQG, 3XAO, 3ZAK, 3AGG, 3ZDF, 3DW and 3KR as well as Associates and B.C.'s in Jan van Kirkwijk, Jim Harrington, Oswald McDonald, David Lawrence and Russell Rolls.

We will try holding the zone hook-ups on alternate Mondays. The zone hook-up on 40 mX frequency will be about 3580 Kc. at 7.30 p.m. every second Monday evening and on the other bands it will be about 10.00 p.m. on a spot about 7100 Kc. The first station on the air is to pick a clear spot and call on 40 mX. It was interesting to hear that Jim Muntz is now back in the National R.F.B. radio network. Ian 3JTS is on deck. It will be remembered that George 3GD was first to hear the voice of Spidey on 40 mX. Jim 3JF and Des 3CO is keeping busy, as is Murray 3JZ and Johnny 3ACK does not have much spare time, but he is working on a new antenna. 3JF is well on the way to recovery now and Keith 3JC is tied up by his business ventures. Former zone member Doug 3JL sailed with the Antarctic party in the "Dartmouth" last year. Thala Dan early in January for the I.G.Y. operations at Mawson.

Very little activity in fields of interest other than Amateur Radio, while Henry 3HP

is often heard on his R.F.B. radio network and Hugh 3AHF is about also. An interesting note appeared in the mail from Associate Bert Brown in Yea. It has been learned with some regret that Jim 3JK has been rather seriously ill in the last few days. The 3JK at the Convention included 3HP, 3AUL, 3GD, 3ASF, 3CO and 3CI, all of whom we hope to see at our next Convention, to be held we expect at Benalla on the first Sunday in April, or so we expect at the moment.

#### SOUTH WESTERN ZONE

The zone members have been very active of late and let's hope that it continues. I think quite a lot of inactivity is caused by the green-eyed monster of the moment. The zone hook-up also John 3ARJ is very consistent on the Thursday night hook-up. Also Thorb 3APS, Neil 3HG and from Geelong Bob 3IC, but there are still a lot more who could be on. Jim 3ABT is on regularly. Well chaps, don't forget to book before the 15th February if you intend coming to the Convention which is to be held in Warrambool on the week-end 22nd and 23rd March. There is £1 deposit required with all bookings and 10/- for the dinner, so don't hesitate to book as the above date cannot be altered.

Anyone who intends bringing a caravan must come to the Convention. W. Morgan, 3Wley ST, Warrambool, know as soon as possible; so help us to help you. Whilst taking in the Convention there will be 144 mX hunts, hidden tx hunts and we will be on the move mobiles coming to the Convention from 12 midday on 22nd on both 7 and 3.5 Mc. You mobile chaps will be required to bring a car for some coming and bring the family and make a holiday week-end of it. Please note, any ladies who wish to go to the netting on the Saturday night must let the organiser know before 14th March so don't forget. Watch for the full programme in the March issue.

#### WESTERN ZONE

We welcome new members to the Ham ranks in this zone. They are Reg Dabby, of Horsham (who is a regular in the last issue of the magazine) to say is a permanent resident of Horsham, and Vic Maddern, of Murtos, who has been busy with the last issue of the magazine a correspondence course. Vic passed the exam at his first try recently. Both these chaps are working on 40 mX.

George Small, of Rainbow, has also recently obtained his Limited. George is working on 3CO converting it to the 3 Mc band and will be using the new beam. He will be carrying out tests with Jim 3AOE of Hopetoun and Max 3ZCW of Ouyen in the near future.

#### QUEENSLAND

Amateur Radio activities have, for the past month or so, really ground to a stop! There has been a long silence from all quarters, as the boys availed themselves of a well-earned break over the Xmas holidays. From what I heard they probably needed it after a really smashing Xmas. The House of Still we'll give them the benefit of the doubt and expect a rejuvenated gang, with plenty of new and revived ideas, at all our 1958 meetings.

All activities other than the Xmas party have been reported, and it is a pity we did not enough news to warrant the presentation of a column in the January issue of "A.R." However, although the January Tx Hunt was cancelled, Jim 3BUT did the job. It is reported that there are several matters to be dealt with by Council at its next meeting. So boys, don't let me hear you have to put up with re-hashed news items.

One of our important functions, the Xmas party, was held at Annac House and perhaps the most biggest roll-ups we have had for many a long day. Arthur 4AW once again very ably organised the show and is to be congratulated. The boys did it. The boys, having had all year to look forward to the party, certainly did justice to the well prepared spread. As usual, there was more than enough to eat. I believe Xmas many won't agree with me) of all things good to eat and drink.

Members of the party, Maryborough, Gymbie, etc., were really keen. It certainly is a long way for the country boys to come, but they were well worth the long drive. The boys are enjoying themselves just like a good happy family. In all, 42 members and friends attended, which was, considering the usual, a fine effort on the part of all those who attended with a special mention for the country boys who travel the long distances that separate town

and country can be assured of a really good time at all the W.P.A. functions because the boys are really enjoying themselves and the personal sacrifices that have to be made.

However, all said and done, a really excellent evening was had by all. The boys and the only bit of news, regarding disposals, concerns ten surplus buses. These will go to ballot in the usual manner. I was informed, however, that the boys of the Keys 4200 are handing! One particular gentleman (himself a left-handed creature) proposed that a special ballot be held for the boys of the keys. The left-handed Hams. There must be a catch somewhere.

Brother B-and is still enjoying "well-earned" holidays at Tawantin, with frequent daily visits to the "Royal Mail". Enjoy yourself, Frank, it's later than you think. The boys of the keys who for some considerable time has been a Radio Inspector in Brisbane, was recently transferred to Townsville as District Radio Inspector. I'm sure the boys up there will find in him a man who, although he knows the regulations backwards, applies them with common sense and understanding.

As usual the general meetings will be held on the fourth Friday evening of each month. Hidden tx hunt will be held on the 4th, hiding the tx for the first time in 1958 on the first Friday evening in February at 8 p.m. The net will start from 60 Liverpool Road, Clayfield.

#### TOWNSVILLE

Since penning the last note I have covered quite a few mobile visits to my friends' holidays. As promised, I paid a visit to Rockhampton and met the following: Hal 4DO, who kept me very busy with his mobile, and around his beautiful rubbish, which looked very nice, especially the simple supporting structure. Bob 4NG was next on the list and he introduced me to the 4200 of Mt. Morgan, the only signal on the band, via 50 Mc hook-up. Bob is now getting deep into the radio hobby. He is now working on Eric 4EC failed to answer the telephone and missed out. Tom 4ZL was next on the list and he was really a very accommodating chap of the lot as I walked away with Kingsley 3BR and 30 Mc converter. Was unable to see any of the other boys as my mobile was broken. I was really a very busy town of Mt. Chalmers of my childhood days. On the return journey a visit was paid to Maryborough where I met the boys who took me to see John 4FH and his 3 c. beam. Then on to Home Hill where Norm 4ED was looking for a new beam. I and I made myself known in person in lieu of voice in the 7 Mc hook-up. Arrived back in Townsville just in time to be present at the 4200 of Alec Munro, our local Radio Inspector, to Hobart.

Quite a nice gathering of the local radio club members was presented at the meeting of off very nicely. Farewell speeches were made to Alec by all members present and we wished him good speed and Good Luck in VK Land. He promised to come on the air occasionally. The President, ARW, then presented Alec with a pipe as a token of the esteem in which he was held. Alec responded and regretted his departure, but promotion can only come by transfers. Accordingly, he was promoted to the position of going from the frying pan into the fire. He then asked all the boys to give the same benediction to the new Radio Inspector, L. McGarry, who arrived that day and was also present. Lance was warmly welcomed by the President and others in short order. The President then presented the new Radio Inspector, L. McGarry, who arrived that day and was also present. Lance was warmly welcomed by the President and others in short order. The President then presented the new Radio Inspector, L. McGarry, who arrived that day and was also present. Lance was warmly welcomed by the President and others in short order.

The following week found me on the highways again. This time travelling north. First passed through the 4200 of the keys. I was asked made for me with the gang to work out my route and stations to visit. This was a visit to the 4200 of the keys. I was asked made for me with the gang to work out my route and stations to visit. This was a visit to the 4200 of the keys. I was asked made for me with the gang to work out my route and stations to visit. This was a visit to the 4200 of the keys.

Next was a visit to Malanda to see Claude 4WX and his string antenna, where I heard the 4200 of the keys. I was asked made for me with the gang to work out my route and stations to visit. This was a visit to the 4200 of the keys. I was asked made for me with the gang to work out my route and stations to visit. This was a visit to the 4200 of the keys. I was asked made for me with the gang to work out my route and stations to visit. This was a visit to the 4200 of the keys.

After travelling up as far as Daintree the car was driven back to Cairns where I stayed for the week-end where once again

I missed A&E 4MA at Basil 42W's place. Will you see yet? This time, however, I hope Visits were paid to Ken 4XD and a few pieces of gear swiped. Next on the list was Bill 4XM, who has boxes and boxes of dispo. I went on to Ilem's place and found a list, with small prices, for the gang.

Home again for Xmas and a good roll up on the McGee's. The new year's Eve party week-end takes me back to Bowen and Mackay where Harry 42P from Sarina promises to come to see me, and I hope so.

While on my way Bob 4MF has put up a new G4W beam and it seems to be working nicely. Bill O'Donnell is patiently awaiting his 2 coil sign. Two or three chaps have the barrier on 14th Jan. and we wish you all success. If you miss out remember Robt Bruce and the spider. Try again.

#### MARYBOROUGH

4DJ came back from a visit to Sydney with much gear that the cur couldn't hold it, and had to have the rest of it railed. Graham has his 15 and 10 metre quads tuned up now and has worked many new countries. Is building a new final with an 818, and a mobile rig for the Field Day. 4CB still active on 10 and getting through to Europe most nights.

4DB has been on 10 with a borrowed receiver and now building a 3-tube converter. He has been doing results in the 10 metre tri-band beam, comparing well with separate beams at other stations. The new 15 metre converter at 4AI is working well, and Alan should be on soon.

#### SOUTH AUSTRALIA

Our Christmas meeting got away to a really good start with formal business being concluded in record time, which included constitutional full membership. Ken 4YD, Cooper, K. G. Yates and R. L. Dyer, and 14 new associates. Welcome to the Division to you all, we know they'll be a member and derive benefits therefrom.

One of the benefits was, or could have been the "Christmas Slides" which were a set of coloured pictures by Gordon 5DX and Brian 5CA of their memorable trip overland to Ayres Rock and back. Gordon gave us the geography of the trip, and Brian, who was the driver, involved, whilst Brian in his usual style made a good commentary on the slides as shown. The 100 members present enjoyed the slide display and were sorry to see it end.

And it had to do, because, thanks by that time Chief Doc 5MD and his merry band, not forgetting steward Jim Paris, had the billy boiling and the ante-room just bursting with cakes, biscuits, pastries, pies, sausage rolls and sandwiches, so something had to be done about it.

QSL distribution was made whilst this sumptuous repast was laid on a long table (about two wavelengths long) right down the hall. Oh yes, a snow white table cloth of great strength (plus more and effect) covered said table, and it is to be noted here that one Les 5AX cleared a gap amongst a lot of cakes and biscuits, and placed his production on said cloth. Just shows the habit of a lifetime will out.

In that healthy appetites there was a large quantity of items left over which as usual was distributed to charity, so if any of you brought along any of the "excess" satisfaction of knowing some needy person shared the surplus.

It was fairly late before the party broke up, from the fact that had to have their meeting kerbside as usual and were not a bit dismayed by a late start.

The social matter was appreciated by all and all voted it another good show.

February 23 will see the end of financial year, when the Committee, Officers and Council will be up for re-election or not, according to the members' desires. If you have anyone who you would like to see on Council now is the time to speak up, let that person know the right away for new blood and new ideas are the life blood of our show, so don't be backward. In the interim, we have had a good find it an interesting experience and well worth while.

Last night's meeting we had the pleasure of a visit from Geo. SEC who by virtue of the work he does at Ceduna was able to give quite a few pointers on emergency communication work, which were very grateful. Thanks, George.

The resignation of Ian 5IQ from the T.V.I. Committee was discussed and the Council had done a power of work on that Committee, anyway it was seen Ian could not carry on under the circumstances, but has made himself available for consultation wherever needed.

So VK6 did it again, congrats chaps, we ran second. Look out next year, for it would be nice to see the R.D. Trophy again.

There always has to be a first in things; this time it's Reg 5RR who came on the air on 40 mhz like a swimmer (not a fish, please), either, and if nothing else demonstrated that he put in a louder signal at my QTH on d.a.b. than I did. Heavens! I had no previous experience, but it was f.b. and we hope to hear more of him and others who may try the same.

I know you would not expect Gordon 5KU to use this expression, but one Sunday recently on the broadcast he claimed the bands were so good like a swimmer (not a fish, please).

Keith 5KH heard recently inviting all and sundry to visit him and share some 50 watt bottles. I took note, but I don't like the weather encourages such sharing. Nobby 5WT now using 40 mhz so look out for him, forecasting 100 Nobby's best, but placing the bet anyway. Les 5AX now has his G4WZ remote controlled and selsyn indicated, nice job too, he might even work a G at that. Carl 588 last heard of at the 20 ft level of his new tower.

Joe 5JO complains he has a welder operating near him, in fact so close that his 240 c/s flutters each time an arc is struck, and that he can hear the a.c. hum of the welder transformer when he is welding. I don't know what's similar, but either, but little further from him, stated to be within brick throwing distance, although not known if so measured.

The 100th anniversary of the birth of Christ December of Clem E. Ames, who was the first Secretary of the W.I.A. and naturally was responsible to a large degree, in placing the Institute on its feet in the early days. So another pioneer passes to his reward.

We were all saddened by the news of the tragedy suffered out to Pete 5FPM, much has been said on this that there is no need to add words to it now, but it is considered that 5WI treated the matter in the broadcast in an understanding way and expressed all our sympathies at that time.

W.I.C.E.N. has continued to take shape and form up for emergency. Jim 5JK is of course the Chairman of the Executive Committee with John 5JH and Brian 5CA as co-ordinators. The standby roster for each week is being given over 5WI each Sunday and also published in the Advertiser's notes each Thursday. Members please watch the notices and the co-ordinators promptly if your affairs prevent you fulfilling the duty allotted to you.

582 and 583 are running the clinics, agencies with 7050 reserved for Federal contacts.

More members are required for W.I.C.E.N., both full and associate, so join up now to aid the work being done. The Institute has a competence in operating technique. Certain equipment is available to help you join in if you are not so equipped at present.

Wal 5DF plays a mean game of playing bowls, making 50 cycles and beheading chords. Dave 5BF heard occasionally on 40 mhz, but not over much these days. John 5MG back from camp and again on the job. Joe 5JT changes antennae like most of us change our minds—

but always backs with a reasonable signal. Laurie 5XN recently complained of sparrows on beams, burning resistors, floor polishers, carpet sweeping, etc., that always appear when he's away. I don't know if he's right. Anyway, he was heard recently trying out a new pre-amp with clipper, sounded fine here, particularly on 10 mhz.

Burnie and Ron 5WC continue to keep in touch each Sunday. Bob 5RI always a good bet for a QSO on 40 mhz these days. Austin 5RO has been doing well on the 10 mhz, although gathered this mainly from those replying to him. Ken 5KC bobs up at the most widely scattered places whilst trying out his new gear. Frank 5M last heard of over 3LM tx.

#### TASMANIA

##### NORTH WESTERN ZONE

Well, I've been caught at last! No, no, not the R.D. I happened to be out for a 40 mhz opening when I heard Myles 5KM and Dennis 7DR in contact, so decided to risk the rebuffs and break in, called many several times, but they didn't seem to hear me, so on 80 mhz. I'd got zero beat test! President Sid 7SF in Melbourne recently, did the rounds and I had to drop out, but I don't know if he was much as he was unable to obtain the 215 from Hon. Treas. for zone purchases. Better luck next time.

At the end of the year seems to be popular for recreational leave, Dennis 7DR has been holidaying at Anson's Bay. Didn't hear that Dennis 7IG had been away, but he has changed his QTH from Latrobe to Devonport,

also enjoying leave. Ted 7EJ had a visitor recently from VK3. Charlie 7ASA, also on leave. Understand Charlie cleaned up the operating position at 7EJ, unfortunately not till after Ted had had a visit from the 7EJ. Ted says he won't be able to do anything now. Secretary MSA is still busy studying, and I believe is building a coil winding machine. Transmitters and coils. But I don't wind all his power transys for the rig. Trust you will be in for the next exam Xmas.

We have now acquired a second member at Stanley—Reg 7RN has returned to the fold. That was a neat little portable, but Reg 7EJ hear you some time. Same for Pat 7PM. Nothing heard of the associates in the zone over Christmas. Yarns about the 100th anniversary that they have now got back into stride and are all studying hard. A little and often is the shot.

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